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BOOK REVIEW

Viroids and viroid diseases. T. O. Diener. John Wiley & Sons. 252 pp. 1979. $19.95.

What are viroids? The subject, and the name, might be unfamiliar to many, because the study of viroids began in the present decade. Quoting from the preface of this volume: "Viroids are the smallest known agents of infectious disease. They are responsible for a number of destructive diseases of cultivated plants, but may also occur and cause disease in animals. Although some of the diseases that viroids cause had been known for decades, these diseases were generally believed to be due to infection by conventional viruses. The unique nature of their causative agents came to light only in 1971 . . . ." The author of this volume is the foremost authority and the actual discoverer of viroids, who has coined the name "viroid" for these small nucleic acid molecules. The interest in viroids is not limited to plant pathologists, and it seems likely that diseases of insects and of higher animals will be recognized as caused by these agents, once the techniques, clearly described in this volume, will be applied more widely to the study of "uncertain etiology" ailments. Diener has provided a remarkably comprehensive, unified, and well-written volume on all aspects of viroids. There is no other book available that successfully covers this range of material. The introductory chapter presents the chronology of discoveries that resulted in the convincing evidence that viroids consist of nonencapsulated nucleic acid, that the infectious process is not caused by a contaminating virus, that viroids contain a low molecular weight nucleic acid that replicates autonomously without a helper virus, and consists of one molecular species only. At present (1979) seven viroids have been recognized, all causing plant

diseases of economic importance. The author discusses the widespread nature of established viroids and their serious potential threat to agriculture. He also provides a very stimulating discussion of future research problems and approaches, including the intriguing possibility that certain "slow viruses" causing human diseases might actually be caused by viroids. Although the primary audience for this book will consist of plant pathologists, medical and veterinary researchers, virologists, and molecular biologists, many entomologists, particularly insect pathologists will find this subject of considerable interest. The exhaustive bibliography and subject index, totaling 27 pages, add to the value of this definitive treatise. The book is a joy to read and it will be valuable for many years to come both as a text and a reference.

Karl Maramorosch, *Waksman Institute of Microbiology, Rutgers—The State University*

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BOOK REVIEW

Twelve Little Housemates. Karl von Frisch. Pergamon Press, Oxford, New York. 1979. 155 pp. $12. Hard cover; $6. Paperback.

The 4th (1955) German edition of the popular book by Nobel laureate Karl von Frisch has been translated into English in 1960 and reprinted several times. Now the enlarged and revised English edition has been published for the Pergamon International Library of Science. The book is written for lay people in a non-technical, humorous style and it is intended for the general public. Although not specifically aimed at entomologists, it nevertheless belongs to the personal library of every entomologist. The 12 invertebrate "housemates" are the housefly, gnats, the flea, the bed bug, lice, the clothes moth, the cockroach, aphids, ants, silverfish, spiders and ticks. The book was aimed primarily at the European reader and the author did not include termites, practically unknown in Central Europe, but of considerable importance in other parts of the world. Here are samples of some subtitles: "How to recognize a fly"; "How flies help doctors"; "How one can get lice, and how to get rid of them by methods other than those of gas warfare"; and on cockroaches: "Mouths that bite, lick, suck and sting." The book is enjoyable and educational not only for children but also for adults, including scientists.

Karl Maramorosch, *Waksman Institute of Microbiology, Rutgers—The State University*